



ИБП Eaton 93PS - Eaton 93PS UPS - Информация о системе

Постоянная ссылка на страницу: <https://eaton-power.ru/catalog/tower/eaton-93ps/>

# More advanced power protection



**EATON**

*Powering Business Worldwide*

# Eaton 93PS UPS 8-40 kW

Lowest total cost of ownership and maximum availability – taking scalability, resiliency, safety and efficiency to the next level.

The most advanced UPS in its power range, the Eaton 93PS is ideal for small data centres and other mission critical applications where efficiency, reliability, safety and scalability are essential.

## Future-ready

The rapid adoption of the cloud, constant evolution of IT technologies, increased focus on environmental footprint and sophistication of mission critical applications is demanding even more **efficient**, **resilient**, **scalable** and **safe** power protection solutions.

The new levels of efficiency and scalability offered by the 93PS minimise Total Cost of Ownership while the safety and resiliency, both in infrastructure and IT layers, maximise availability and ensure business continuity.





# The most efficient, lowest TCO UPS in its class

The Eaton 93PS is simply the most efficient UPS in its class, offering the lowest Total Cost of Ownership. Thanks to Eaton's advanced algorithms and energy-saving features, the 93PS achieves up to 99% efficiency. This efficiency is well proven with installations in major datacentre hubs in Europe and around the world. Calculate your own Total Cost of Ownership at: [eaton.eu/TCO](http://eaton.eu/TCO).

## 99% efficiency - Energy Saver System (ESS)

Improves the 93PS efficiency levels to 99%, by suspending the power modules when power conditioning is not required. The power is fed through the static bypass switch, and in the event of exceeding pre-set input limits the UPS is ready to switch to double-conversion mode in under two milliseconds. In addition to extremely low losses, the ESS mode provides filtering against fast low-energy transients. It is simply the most advanced, most reliable, fastest-reacting energy-saver architecture available.

In addition to saving energy, this technology enhances the reliability of the system by reducing electrical stress in the power electronic components, extending the UPS life time and thus reducing total cost of ownership.

## Optimised double conversion efficiency - Variable Module Management System (VMMS)

For applications where ESS may not be optimal, for example with very low quality mains, VMMS technology includes automatic variable power module management. The system automatically suspends and engages modules as appropriate, to optimise efficiency both at UPS and system level.

VMMS helps you achieve high efficiency even when UPS load levels are low – typical for redundant UPS systems. VMMS can optimise the load levels of power modules in a single 93PS UPS or in parallel systems, by suspending extra UPS capacity. This means not only greater efficiency at lower load levels, but optimum efficiency at all load levels.

## Maximum double conversion efficiency

The 93PS still offers the highest double conversion efficiency in the market, reaching above 96%.

CO2 EMISSION  
REDUCTION

19  
TONNES

=

x4 

FLIGHTS AROUND THE  
GLOBE PER PERSON

\* 1x40 kW in ESS mode with 50% load level over 10 years compared to double conversion

## Maximum scalability

The highly scalable nature of the 93PS means that scaling up in response to increased demand takes minutes rather than hours. Scaling up can also be achieved without increasing the footprint – saving valuable floor space. The modular design allows for internal redundancy, which eliminates the need for an additional UPS for N+1 configurations.

External redundancy also improves scalability, by paralleling up to 8 frames for a total system size of up to 320 kW.

## Highest power density

The unity power factor maximises the true available power of the 93PS. This means it can deliver up to 20% more real power than other UPSs in its class.

# Maximum availability

Maximum availability is integral to business continuity, and integral to the design of the Eaton 93PS UPS. It ensures you can always access the power your mission-critical application requires.

## Hot swappable and hot scalable

Due its modular design, a 93PS power module can be replaced or added while another module continues protecting the load. This eliminates the need to go to bypass for module replacement or upgrading (MTTR: 0 minutes). Replacement and upgrade operations typically take less than 10 minutes.

## Centralised topology and super-sized static switch

The 93PS's centralised topology is ideal for scalable systems, as it provides full bypass capacity from day one, whereas modular designs with static switches in every power module can have a severe negative impact on the selectivity of the system due to undersized static bypass. This can compromise the availability of the overall system.

Available as an additional option, the 93PS offers a super-sized static switch for applications where more static bypass capacity is needed.

## Flexible battery configuration

With internal battery models, the 93PS offers the possibility to have either central or separate battery configurations. By default, capacity models have centralised configuration, while redundancy (N+1) and scalable models have separate configuration.

The UPS can protect the load while batteries are replaced (MTTR: 30 minutes), and individual strings can be serviced while other strings are connected and supporting the load.

## Independent controllers

Each UPS has a single controller, but each power module has its own independent controller. If the main UPS controller fails, the module controller can take over. These independent controllers enable a faster response time in the event of failure.

# More safety

The 93PS features simplified compliance with local electrical installation regulations and maximises safety of both personnel and electrical installations.

## Back-feed protection device

The International standard and European Normative IEC 62040-1 states that a UPS device shall prevent all hazardous voltage and energy from being transferred to the UPS input terminals after the input power has been interrupted. This can only be achieved by means of either an internal or external back-feed protection device in the static bypass circuit of the UPS.

The 93PS includes an internal back-feed protection device in all its models ensuring compliance and eliminating any unnecessary costs and effort installing an external device in an existing electrical installation.

## Ultra-safe battery cabinets

Battery cabinets should be designed to provide sufficient airflow to prevent a dangerous concentration of gases. The 93PS battery cabinet range ensures maximum safety by complying with safety standards IEC 62040-1 and EN50272-2. In addition, all battery cabinets include a battery breaker for isolation and short-circuit protection as well as poka-yoke features for safe and easy replacement.

## Maintenance Bypass Switch (MBS)

The 93PS range includes two, three and four switch maintenance bypass models and a three breaker battery module for a variety of configuration options. All models are IEC 61439 compliant for safety and performance, and feature a rotary-type switch which prevents human operational error.



## More intelligence

The Eaton 93PS UPS is a uniquely intelligent UPS, which is both virtualisation- and cloud-ready.

### Single pane of glass

Utilising Eaton's Intelligent Power Software Suite (Intelligent Power Manager – IPM – and Intelligent Power Protector – IPP) the 93PS integrates with leading virtualisation and storage platforms, and allows users to view, monitor and administer physical and virtual servers, UPSs, PDUs and other power devices, from a single pane of glass.

Network- and power-related alerts will be provided through the virtualisation management application, and the 93PS will take the resiliency of the system to the next level, by bridging the electrical and IT infrastructures.

### Simple policy-based integration

Intelligent Power Manager ensures business continuity by enabling simple, policy-based controlled automation – driven by power and environmental events. Users can create policy-based integration between their power infrastructure, vmware, Cisco UCS and NetApp storage devices, to automatically expose the state of the power infrastructure to higher-level IT systems and virtualisation orchestrators.

### Load shedding

One of the key benefits of policy-based integration is load shedding. A 50% drop in load equates to up to 250% more battery run-time.

Intelligent Power Manager provides several options to extend runtime for critical applications. For example:

- if the UPS battery level dips below 30%, vmotion can be triggered, to move critical VMs to an unaffected host
- if the UPS goes onto battery
  - non-critical services will be suspended or carefully shut down
  - critical loads will be consolidated onto fewer host servers
  - unused host servers will be shut down.

As a result, battery run-time will be extended, providing a larger window for SRM disaster recovery.





## Eaton 93PS user display

For user safety and convenience, the 93PS displays a range of colored LED indicators as operating status alerts. These are displayed both on the cabinet door of the UPS and on screen.

### Normal operation



### Bypass mode



### Battery mode (blinking)



### Alarm





# Technical specifications

GENERAL	8-20 kW	8-40 kW				
UPS output power rating (1.0 p.f.)	8, 10, 15, 20	8, 10, 15, 20, 30, 40, 8+8, 10+10, 15+15, 20+20				
Model catalogue reference	93PS-XX(20)-YY-	93PS-XX(40)-YY-				
Number of internal batteries	0 to 2 x 32 blocks	0 to 4 x 32 blocks				
UPS options	Long life batteries (LL) Internal maintenance bypass switch (MBS) External maintenance bypass switch External battery cabinets					
Upgradability	Yes, up to 20 kW	Yes, up to 40 kW				
External paralleling	Up to 4 units with HotSync technology					
UPS topology	Double conversion					
Efficiency in Double conversion mode	>96%					
Efficiency in Energy Saver System (ESS)	Up to 99%					
UPS dimensions (width x depth x height)	335 x 750 x 1300 mm	480 x 750 x 1750 mm				
UPS Degree of protection	IP 20					
Acoustic noise at 1 m, in 25 °C ambient temperature	< 60 dBA in double conversion < 47 dBA in ESS					
Maximum service altitude	1000 m (3300 ft) above sea level at 40 °C Maximum 2000 m (6600 ft) with 1% derating per each add. 100 m					
INPUT						
Rated input voltage	220/380 V; 230/400 V; 240/415 V					
Voltage tolerance:						
Rectifier input	187 to 276 V					
Bypass input	rated voltage -15% / +10%					
Rated input frequency	50 or 60 Hz, user configurable					
Frequency tolerance	40 to 72 Hz					
Input wiring	3 phases + neutral					
Input power factor	0.99					
Input ITHD	8 kW < 5%	10 kW < 4%	15-40 kW < 3%			
Rated input r.m.s. current	8 kW	10 kW	15 kW	20 kW	30 kW	40 kW
380V	13 A	16 A	24 A	32 A	48 A	63 A
400V	12 A	15 A	23 A	30 A	46 A	61 A
415V	12 A	15 A	22 A	29 A	44 A	58 A
Soft start capability	Yes					
Back feed protection	Yes, for rectifier and bypass lines					

OUTPUT		
Output wiring	3 phases + neutral	
Rated output voltage	220/380 V; 230/400 V; 240/415 V, configurable	
Total voltage harmonic distortion		
100% linear load	< 1%	
100% non-linear load	< 5%	
Overload capability		
On inverter	10 min 102-110% load 60 sec 111-125% load 10 sec 126-150% load 300 ms >150% load	
On bypass	Continuous < 125% load 20 ms 1000% load	
Load power factor		
Rated	1.0	
Permitted range	0.8 lagging to 0.8 leading	
BATTERY		
Battery technology	12 V, VRLA	
Battery design life	5 or 10 years	
Battery quantity	32 blocks, 192 cells per battery string	
Battery voltage	384 V	
Nominal Ah capacity (C10)	9 Ah or 7 Ah Long life	
Charge current limit	Default 5 A, configurable Maximum 25 A	Default 10 A, configurable Maximum 50 A
Battery start option	Yes	
COMMUNICATION CIRCUITS		
MiniSlot	2 communication bays	
Network/SNMP interface	Yes, standard	
Standard connectivity ports	Mini-slot ports for optional cards, Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs and a dedicated EPO, Web and SNMP card	
COMPLIANCE WITH STANDARDS		
Safety (CB certified)	IEC 62040-1	
EMC	IEC 62040-2	
Performance	IEC 62040-3	

Eaton is dedicated to ensuring that reliable, efficient and safe power is available when it's needed most. With unparalleled knowledge of electrical power management across industries, experts at Eaton deliver customised, integrated solutions to solve our customers' most critical challenges.

Our focus is on delivering the right solution for the application. But decision makers demand more than just innovative products. They turn to Eaton for an unwavering commitment to personal support that makes customer success a top priority.



For more information, visit [www.eaton.eu/93PS](http://www.eaton.eu/93PS).

To contact an Eaton salesperson or local distributor/agent,  
please visit [www.eaton.eu/electrical/customersupport](http://www.eaton.eu/electrical/customersupport).